

Distress of Elite Young Football Players in Relation to Perceived Coaching Behaviors

Noam Dorfzaun

Department of Psychology, University of Groningen, Groningen, The Netherlands PSEMDT-1

Master Thesis Talent Development and Creativity

14/03/2023

Supervisor and first examiner: Prof. Dr. N.W. Van Yperen

Second examiner: Dr. Barbara Huijgen

Faculty of Behavioral
and Social Sciences

Psychology
Department



**rijksuniversiteit
 groningen**

Abstract

The purpose of the present research was to understand the distress of elite young football players as a function of perceived coaching behaviors that may satisfy or frustrate players' basic psychological needs. This study used existing survey data of 1897 male youth soccer players ($M = 15.2$ years, $SD = 2.3$), who all played for elite youth teams in the Netherlands. As expected, supportive coaching behaviors such as perceived developmental support from the coach, perceived autonomy support from the coach, and the perception of coach performance expectations, relate positively to basic need satisfaction and negatively to basic need frustration. Similarly, controlling coaching behaviors like the perception of negative coach reactions relates negatively to basic need satisfaction and positively to basic need frustration. The players' need satisfaction is negatively related to distress whereas their need frustration is positively related to distress. These findings suggest that coaches should enhance practices by nurturing players' perceptions of their behaviors to hopefully reduce their distress.

Keywords: Perceived coaching behaviors, basic psychological needs, distress, football

Distress of Elite Young Football Players in Relation to Perceived Coaching Behaviors

“I had only been in our new house for a few hours, we were having a barbeque with my family when the doorbell rang: it was Carlo Ancelotti” - Antonio Rudiger (Barlow, 2022). This quote by the newly signed Real Madrid player is meant to illustrate the supportive attitude of a world-class football coach like Carlo Ancelotti. Researchers in the professional sporting context suggest that coaching behaviors can be identified by two divergent interpersonal coaching styles; supportive or controlling (Bartholomew et al., 2010; Carroll & Allen, 2021; Deci & Ryan, 1987; Moreno-Murcia et al., 2019; Rocchi & Pelletier, 2018). Therefore, coaches may set the context of the interpersonal coach-athlete relationship by enacting supportive or controlling behaviors. For this research project, multiple coaching behaviors will be analyzed from the perspective of the players. Depending on the interpretation of these behaviors by the players, their basic psychological needs might be satisfied or frustrated (Mageau and Vallerand, 2003). The purpose of the current study is to examine young elite football players’ perceptions of certain coaching behaviors and how these are linked to their levels of distress through perceived satisfaction or frustration of their basic psychological needs. This is an important topic because research suggests that up to 18% of professional football players report a score of four or more on Braam et al., (2009) validation distress screener, thus indicating experiencing distress (Gouttebauge et al., 2015). Hence, this project attempts to provide further evidence for coaches to better understand how to serve players’ basic psychological needs, and accordingly, to reduce their distress symptoms.

Distress

From a psychological standpoint, distress is defined as “the negative stress response, often involving negative affect and physiological reactivity: a type of stress that results from

being overwhelmed by demands, losses, or perceived threats” (“APA Dictionary of Psychology”, 2022). When a person determines that the demands of the environment outweigh their current personal resources, a stress overload is created (Lazarus & Folkman, 1984). To measure this overload, Amirkhan (2012) conceptualizes two different components which are personal vulnerability (the exhaustion of one's own resources) and event load (the exhaustion of external resources required to fulfill demands). For the purpose of this study, distress is evaluated as the event load young elite football players are experiencing in their life.

When experiencing an event load, the stress response will vary according to the interpretation of that specific event by the individual (Branson et al., 2019). Hence, the amount of distress can be caused by a spectrum of different events and the impact on the player's distress can vary according to their interpretation (Brandão et al., 2021). As a result of their interpretation, an examination of players' perceived coaching behaviors might give way to a better understanding of distress in young elite football players.

Perceived Coaching Behaviors

When specifically looking at the sports field, research proposes that coaching behavior plays a key role in determining young athletes' psychological distress (Amorose, 2007; Bissett & Tamminen, 2022; Pensgaard & Roberts, 2002; Reinboth et al., 2004; Stebbings et al., 2011). In a competitive environment like a football club, young athletes are coached daily, and the relationship between them and the coach is crucial for their development. It is proposed by research findings that controlling coaching behaviors may give way to increased symptoms of distress in athletes, while supportive behaviors might reduce the levels of distress symptoms (Moreno-Murcia et al., 2019). Research has also shown that engaging in supportive interpersonal

behaviors benefits both the recipient of the behavior and the actor by strengthening the relationship (Deci et al., 2006).

However, one should be careful when examining coaching behaviors since there is empirical research arguing that a discrepancy exists between how coaches behave and how athletes perceive the coach's behavior (Rocchi & Pelletier, 2018). Approximately 60% of coaches could tend to overestimate or under-report how their athletes perceive their behavior (Ntoumanis, 2012; Smith et al., 2016). For example, a case study of a basketball coach found that athletes perceived several coaching behaviors more negatively than the coach himself (Kenow & Williams, 1992). Therefore, the focus of this study is on elite young football players and their *perception* of certain coaching behaviors rather than the enacted behaviors by the coaches. Next up for discussion are perceived supportive coaching behaviors such as perceived developmental support (the feeling of being provided with developmental explanations), perceived autonomy support (feeling encouraged and understood), and the perception of coach performance expectations (feelings of reaching the performance standards set by the coach). Additionally, perceived controlling coaching behaviors are examined through the players' perception of negative coach reactions (feelings regarding a negative response to mistakes).

A study on *perceived developmental support* suggests that players tend to perceive the support of their coaches as a determining factor in their progress as an athlete (Duffy et al., 2006). Researchers in favor of this idea highlight that enough time should be dedicated to each athlete in order to understand their needs and interventions should be carefully considered regarding specific situations for them to be effective (Berntsen & Kristiansen, 2019). Similarly, Benson and Saito (2001) investigated developmental experiences in youth programs and suggested that developing the strengths of young people through developmental inputs (e.g.

coaching climate) can promote well-being. Further research supports the framework by suggesting that developmental inputs in the coaching climate are related to lower stress levels by promoting interpersonal coach-athlete relationships (Cronin & Allen, 2015).

Extensive empirical research has demonstrated that *perceived autonomy-supportive coaching behaviors* promote a better experience playing football and lower stress levels in young athletes (Adie et al., 2012; Balaguer et al., 2018; Deci et al., 2006). Autonomy support behaviors relate to the supportive coaching styles that promote talent development by providing clear and meaningful reasoning when communicating their opinions, feelings, and choices with their players (Mageau and Vallerand, 2003). A study of elite youth football players suggests that perceiving coaching behaviors as autonomy-supportive is linked with lower stress levels over time (Adie et al., 2012).

With a systematic review of what influences young football players to drop out of the sport, Schlesinger et al., 2018 mention that a constant struggle exists between the sporting values and philosophy of the coaches against the players' *perception of coach performance expectations*. Coaches create performance expectations about their players based on their interpretation of certain cues (Solomon, 2008), and some player behaviors will vary in order to change and adjust to these expectations (Buning, 2019). However, if players perceive the performance expectations of the coach as unattainable, it could cause detriment to a player's well-being by increasing the amount of distress (Smith et al., 2010). Interestingly, most elite football coaches report they manage to maintain positive interpersonal relationships with their players by setting realistic long-term performance expectations and focusing on well-being, not just performance outcomes (Lindgren and Barker-Ruchti, 2017).

Nonetheless, in order for athletes to effectively perceive the coaches' performance expectations, there needs to be a clear emphasis on the expectations through effective communication (Silva et al., 2019). A study found that athletes tend to want a coach that consistently sets high-performance expectations and raises the standards in line with those expectations (Forlenza et al., 2018). Hence, having realistic performance expectations seems to be a supportive coaching behavior as it may reduce the distress of players by actively supporting them in their development process.

Furthermore, not much research has been carried out on the relationship between the *perception of negative coach reactions* and the distress of athletes. However, there is existing research suggesting that some athletes may experience high levels of negative affect in response to coaches' negative reactions, which can make the sporting environment hazardous (Martin et al., 2009; Smith et al., 1995; van Kleef et al., 2019), by affecting the quality of the coach-athlete relationship (Sagar & Jowett, 2012). That is, coaches who yell, ignore, reprimand, detest, or neglect their athletes may be seen by athletes as abusive or threatening, which will only serve to harm the coach-athlete relationship and increase distress (Adie & Jowett, 2010; Smith et al., 1995). Fortunately, it seems as if most coaches frequently engage in instruction, encouragement, and reinforcement with a lower rate of punitive behavior. However, when a mistake was made by a player, about 40% of the time the reaction from the coach was punitive (Smith et al., 1983).

Therefore, as shown in Figure 1, it is predicted that the perception of supportive coaching behaviors (i.e., perceived developmental support, perceived autonomy support, and the perception of coach performance expectations) relates negatively to distress. Whereas, in Figure 2, it is predicted that the perception of negative coach reactions, which is a perception of a controlling coaching behavior, will relate positively to distress. All these perceived coaching

behaviors are expected to relate to the distress of young elite football players through the satisfaction or frustration of their basic psychological needs, which will be discussed next.

Satisfaction and Frustration of Basic Psychological Needs

Self-Determination Theory (SDT) is a framework used to explain motivation and well-being through an innate human experience of self-development (Deci & Ryan, 2000). One of the many concepts proposed by SDT is that humans' function on the basis of the frustration or satisfaction of three different basic psychological 'needs', which are the need for autonomy (self-organizing and regulating one's own behavior), the need for competence (mastering an interaction with the environment) and need for relatedness (feel connected and belonging to others; Deci & Ryan, 2017). Empirical evidence exists suggesting that all three basic psychological needs are important in diminishing distress throughout the lifespan (Lataster et al., 2022).

According to SDT, basic psychological needs have to be satisfied in order to avoid high levels of distress (Deci & Ryan, 2017). Thus, distress in adolescents can be explained through two different pathways: engagement and disaffection (Curran et al., 2016). The first one, engagement, comes from perceiving high levels of autonomy, competence, and relatedness in relation to the environment or activity where psychological need satisfaction is promoted (Skinner et al., 2009). The second one, disaffection, works through perceiving heteronomous, incompetent, and rejecting behaviors in the environment or situation where basic need frustration is being developed (Deci & Ryan, 2000). For the purpose of this research project, the three basic psychological needs will be clustered together and thus will be identified either as basic need satisfaction or basic need frustration, in accordance with previous research on the topic (Bartholomew et al., 2011).

Research on perceived coach interpersonal behaviors and basic psychological needs suggests that the dynamics of the athlete-coach relationship are promoted when associated with supportive coaching behaviors, and hindered when associated with controlling coaching behaviors (Pulido et al., 2020). For example, supportive behaviors have been linked to high competence perceptions, and controlling behaviors to low perceptions of competence (Ommundsen, et al., 2006). Another example is an examination of positive and negative feedback styles in football coaches by, Erikstad et al., 2018, who propose in their study that positive/instructive feedback was significantly related to basic need satisfaction, while negative/frustrating feedback was not a significant predictor of need satisfaction.

When examining the relationship between coaching behaviors and SDT, supportive behaviors like perceived developmental support relate significantly to autonomy, competence, and relatedness (Hollembek & Amorose, 2005; Mouratidis et al., 2008). Moreover, a longitudinal study showed that player's perception of the amount of autonomy support provided by the coach at the start of the season predicted basic need satisfaction at the end of the season (Balaguer et al., 2018). On the other hand, research observed that the perception of controlling behaviors was a significant negative predictor of perceived autonomy and relatedness (Amorose & Anderson-Butcher, 2015).

Research has established an empirically tested relationship between basic psychological needs and distress (Lataster et al., 2022). There has also been empirical evidence to support the relationship between coaching behaviors and their effect on basic psychological needs and distress (Amorose, 2007; Reinboth et al., 2004; Stebbings et al., 2011). Therefore, this project intends to measure four parallel mediation analyses to explain the relationship between perceived

coaching behaviors and distress through basic need satisfaction and basic need frustration (See Figure 1 & 2; Hayes, 2013).

Method

Participants

The initial sample consisted of 1961 male soccer players from a total of 20 different Dutch clubs competing on an elite level in their age group. Some participants were excluded from the data analysis due to the non-completion of the questionnaire. The self-reported data does not contain any abnormal measurement points for the variables analyzed where there are no outliers to report. Thus, the final sample consisted of 1897 valid participants that were between 11 and 22 years old ($M = 15.2$, $SD = 2.3$), representing teams of nine different age categories: Under 12 (0.9%), Under 13 (14.5%), Under 14 (14.9%), Under 15 (12.8%), Under 16 (17.9%), Under 17 (6.4%), Under 18 (16.8%), Under 21 (14.9%), First Team (0.9%).

At the time of data collection, 14.4% of the players in the sample had already been selected for the Dutch youth national team. The player's current level of education was: none (7%), primary school (1.9%), VMBO (14.8%), HAVO (21%), VWO (18.3%), MBO (13.8%), HBO (3.5%), MAVO (12.3%), University (1%) or Other (6.4%). 93.8% of the sample had a Dutch nationality, and 41.9% had a second nationality in addition to the Dutch nationality. Most participants (79.4%) reported that their parents are not divorced and thus live with both parents.

Procedure

The data for this current study belongs to Amsterdam-based technology company Soul2Goal. The primary organizational aim of Soul2Goal is to enhance sports enjoyment and performances of youth soccer players. For that, the company has developed the 'Soul2Goal Scan'

(Soul2Goal, 2019) – a questionnaire designed to obtain data on psychological and performance-related parameters in youth soccer players. The questionnaire also assesses environmental factors within soccer (e.g., coaching climate) and the athlete's life in general (e.g., family situation). Soul2Goal is a partner of the large data collection project, 'Talentenmonitor,' aimed at optimizing talent development processes in Dutch soccer, funded and organized by the Royal Dutch Soccer Association (KNVB). As part of the 'Talentenmonitor' project, the Soul2Goal Scan was administered throughout the Netherlands between September 2021 and May 2022. Before data collection, the parents of potential participants under 16 received a consent form from the KNVB. In this form, parents were informed about the objectives of the 'Talentenmonitor' project and were asked to grant permission for their child's participation. Players over the age of 16 also received information about the nature of the project but were asked to provide informed consent themselves. Furthermore, the participants, or parents of participants, were informed that each player must have a charged mobile phone available on the day of data collection.

Soul2Goal visited the participating soccer club on-site (e.g., on their training campus). Due to the COVID-19 lockdown in the Netherlands in the winter of 2021, the data from two soccer clubs was obtained in online sessions. At each club, the data was collected per age category, meaning that only one team at a time filled in the questionnaire. For each team, an employee of the company briefly introduced the Soul2Goal Scan and its objectives. The athletes were then asked to access the questionnaire by scanning a QR code on their mobile phones. Under the supervision of the company employee, athletes completed the Soul2Goal Scan on their phones, which took approximately 45 minutes. Before filling out any personal details, the athletes got informed that nobody in their club would get to see their data. All items in the questionnaire are read one by one, and the players can always return to the previous question.

Yet, they could not continue completing the questionnaire if an item was left open. At the end of the questionnaire, the players had to indicate whether they would like to purchase personalized feedback based on their data. Participating clubs also had the opportunity to buy team and club reports but were never granted access to the data of individual players. Ethical approval was provided by the Ethics Committee of Psychology (ECP) of the University of Groningen for a previously conducted research project involving a similar data collection procedure (Dos. nr. PSY-1819-S-0280; Maradata Project).

Measures

Through exploratory principal component analyses and reliability analyses, ad hoc scales were created to test the models. Extracted factors were contingent on eigenvalue > 1.0 and a verification check of the scree plot. Only item loadings of .30 or above were considered satisfactory for an extracted factor (Kline, 1994). All items per scale are presented in the Appendix, alongside their original empirically tested scales.

Perceived Coaching Behaviors were assessed by four subscales. Three subscales measure perceived supportive coaching behaviors and one subscale measures perceived controlling coaching behaviors.

Perceived Developmental Support (PDS). The items of this scale were self-developed for the purpose of this research ($\alpha = .85$). Measured on a 1-7 Likert Scale (1 = *strongly disagree*; 7 = *strongly agree*), the three selected statements provide information about the coaches' developmental support over the past month. A sample statement is "*The coach clearly tells me what I need to do to improve.*"

Perceived Autonomy Support (PAS). Based on Deci and Ryan's (2001) six-item Sports Climate Questionnaire - short form (SCQ), the six statements were adjusted to fit the soccer

context ($\alpha = .81$). Measured on a 1-7 Likert Scale (1 = *strongly disagree*; 7 = *strongly agree*), this variable intends to represent how much autonomy support a coach gives to his players. An example of a statement is *"The coach gives me choices and options on how I can develop myself as a football player."*

Perception of Coach Performance Expectations (PCPE). The four-item scale of coach performance expectations was adopted and slightly adjusted from Rice et al., (2014) Short Almost Perfect Scale ($\alpha = .77$). Measured on a 1-7 Likert scale (1 = *strongly disagree*; 7 = *strongly agree*), the players are asked to what extent they think they are meeting their coach performance expectations. A sample statement is *"The coach is often disappointed in me because he thinks I could have played better."*

Perception of Negative Coach Reactions (PNCR). Measured on a 1-7 Likert Scale (1 = *strongly disagree*; 7 = *strongly agree*), three items represent the negative responses a coach can have as a reaction to an action executed by a player ($\alpha = .68$). Adopted and slightly adjusted from the Coaches' Controlling Interpersonal Style - Psychometric Scale (Bartholomew et al., 2010), this variable intends to measure the perception of the negative reactions exerted by the coaches. An example of a statement is *"The coach gets annoyed when I make a mistake."*

Basic Psychological Needs were assessed with two subscales adopted from the 12-item Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS) - Sport version in Dutch (Van der Kaap-Deeder et al., 2020). One subscale measures basic need satisfaction and the other measures basic needs frustration. For both subscales, players had to report their perceived autonomy, competence, and relatedness in relation to the coach's behavior. The participants were asked to recall certain feelings they had during training and/or competition in the past two weeks. If they had not been present during training and/or competition, players were asked to recall their

feelings on the period before they were not able to play/train. Each item was followed by a 1-7 Likert scale (1 = *not true at all*; 7 = *absolutely true*).

Basic Need Satisfaction (BNS). Concerning the items of the BNS subscale, the following examples represent the measurement of autonomy, competence, and relatedness, respectively ($\alpha = .73$): "*During training and/or competitions I had a sense of choice and freedom in the things I did,*" "*During training and/or competitions I felt skilled or good at what I was doing,*" and "*During training sessions and/or matches I felt connected to my teammates and/or the coach.*"

Basic Need Frustration (BNF). Concerning the items of the BNF subscale, the following examples represent the measurement of autonomy, competence, and relatedness, respectively ($\alpha = .71$): "*During training and/or competitions I felt compelled to perform a practice form/task assignment that I would not choose myself,*" "*During training and/or competitions I felt insecure about my skills,*" and "*During training and/or games I had the feeling that my teammates and/or coach were cold and distant towards me.*"

Distress was measured through an adjusted version of the Amirkhan (2018) 10-item Short Stress Overload Scale (SOS-S). The scale used for the current study consisted of five items ($\alpha = .84$), where players are asked to indicate their event load in the past two weeks. The following statements are measured on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*very much*): "*It felt like you could not meet the expectations*", "*It felt like you were being hunted*", "*It felt like you had too much on your mind*", "*It felt like you were always under pressure*", and "*It felt like carrying a heavy burden on your shoulders.*" Because in the Soul2Goal Scan, the SOS-S was adapted to be used for youth soccer, we also tested the construct validity of the scale by means of an exploratory principal component analysis (PCA). All 5 items are loaded on a single component indicating empirically that they measure the same construct.

Results

Descriptive Statistics

The preliminary analysis shows that the data is normally distributed across all the variables. Also, a series of regression analyses portrayed that all variables have linearity and do not violate the homoscedasticity assumption. Each data point is independent of the other in accordance with the independence of observations assumption. Both mediators are used in the analysis in the same model since they are allowed to correlate. However, too highly correlated mediators can lead to multicollinearity, which can overestimate the effect of the variables (Kane & Ashbaugh, 2017). As shown in Table 1, the correlation between the two mediator variables is $r = -.44$, indicating a moderate negative relationship that should be exempt from overestimating the effects.

Besides the correlations, Table 1 also shows the mean and standard deviation of each variable. The young elite football players that participated in this study reported higher basic psychological need satisfaction than frustration on average ($t(1894) = 78.2, p < .001$). The mean on perceived developmental support was higher than the mean on perceived autonomy support ($t(1894) = 4.7, p < .001$) and the perception of coach performance expectations ($t(1894) = 7.8, p < .001$). Moreover, the mean on perceived autonomy support was higher than the mean on the perception of coach performance expectations ($t(1894) = 6.2, p < .001$). However, the mean of perceived negative coach reactions was significantly lower than the mean of perceived developmental support ($t(1894) = 46.1, p < .001$), perceived autonomy support ($t(1894) = 44.5, p < .001$), and the perception of coach performance expectations ($t(1894) = 38.0, p < .001$). Also, players in this study reported low levels of distress with 68% of the participants reporting a

score of two or lower on Amirkhan (2018) Short Stress Overload Scale (SOS-S) and the mode was a score of one.

Hypotheses testing

The mediation hypothesis models presented in Figures 3, 4, 5, and 6 were tested by taking on a non-parametric bootstrapping analysis using model 4 of PROGRESS macro by Hayes on SPSS Statistics (28). This statistical technique was preferred over other methods (e.g. Baron & Kenny, 1986) because it is a contemporary method, does not suffer from problems like low statistical power or the inability to test multiple mediators at the same time, and makes no assumptions about the shape of the sampling distribution (Hayes, 2009).

To test the single-step multiple mediation models, 10000 bootstraps resamples were created with a 95% bias-corrected confidence interval (*CI*). An indirect effect or mediation effect can be identified by examining the lower and upper CI and detecting if zero is included or not (Hayes, 2013). If zero is not included in the CI, then a "true" effect might exist. Bootstrapping is an empirically tested method for mediation analysis in the field of sports psychology (Gustafson et al., 2013).

The four mediation models presented in this study were tested and are portrayed separately. Each model displays the unstandardized regression coefficients for the relationships between each variable measured in this study. In each model, one specific behavior of the perceived coaching behaviors is the independent variable (*X*). Basic need satisfaction and basic need frustration are both included as parallel mediators in the single-step multiple mediator models (see Figure 1 & 2; Hayes, 2013). Finally, in every model, distress is the dependent variable (*Y*). Table 2 portrays each indirect effect with its bias-corrected 95% CI for all four models in this analysis.

Results from the single-step multiple mediator's models indicate that all confidence intervals (CI) exclude zero, giving evidence to suggest with 95% confidence that “true” indirect effects exist in all four models and therefore the indirect effects are probably not zero (Hayes et al., 2011). A nonsignificant direct effect (c') suggests that the relationship between the independent variable and the dependent variable ($X \rightarrow Y$) is completely mediated by a mediator variable (M). As can be seen in Table 2, all the indirect effects of all models were significant (i.e., all CIs exclude zero).

Specifically, the first model (see Figure 3) includes perceived developmental support from the coach as a predictor variable. Because the direct effect (c') of developmental support on distress was not significant ($\beta = -.04$, $SE = .02$, $p > .001$, 95% CI = $-.08, .00$), we can conclude with 95% confidence that basic need satisfaction and basic need frustration completely mediate the relationship between perceived developmental support and distress in this model (Hayes et al., 2011). The total effect of perceived developmental support on distress was significant ($\beta = -.28$, $SE = .02$, $p < .001$, 95% CI = $-.32, -.24$). Approximately 36% of variance in distress was explained by the model with the mediator variables as predictors ($R^2 = .36$).

The second model (see Figure 4) includes perceived autonomy support from the coach as a predictor variable. Because the direct effect (c') of autonomy support on distress was not significant ($\beta = -.03$, $SE = .03$, $p > .001$, 95% CI = $-.08, .02$), we can conclude with 95% confidence that basic need satisfaction and basic need frustration completely mediate the relationship between perceived autonomy support and distress in this model (Hayes et al., 2011). The total effect of perceived autonomy support on distress was significant ($\beta = -.36$, $SE = .03$, $p < .001$, 95% CI = $-.41, -.31$), and approximately 36% of variance in distress was explained by the model with the mediator variables as predictors ($R^2 = .36$).

The third model (see Figure 5) includes the perception of coach performance expectations as a predictor variable. The direct effect (c') of the perception of coach performance expectations on distress was significant ($\beta = -.18$, $SE = .02$, $p < .001$, 95% CI = $-.22$, $-.13$), and also the total effect of the perception of coach performance expectations on distress was significant ($\beta = -.44$, $SE = .02$, $p < .001$, 95% CI = $-.48$, $-.40$). Approximately 38% of variance in distress was explained by the model with the mediator variables as predictors ($R^2 = .38$). Because the direct effect is closer to zero than the total effect, we can conclude with 95% confidence that basic need satisfaction and basic need frustration at least partially mediate the relationship between the perception of coach performance expectations and distress in this model (Hayes et al., 2011).

Lastly, the fourth model (see Figure 6) includes the perception of negative coach reactions as a predictor variable. The direct effect (c') of perceived negative coach reactions on distress was significant ($\beta = .06$, $SE = .02$, $p < .001$, 95% CI = $.03$, $.10$), and also the total effect of perceived negative coach reactions on distress was significant ($\beta = .24$, $SE = .02$, $p < .001$, 95% CI = $.19$, $.28$). Approximately 36% of variance in distress was explained by the model with the mediator variables as predictors ($R^2 = .36$). Because the direct effect is closer to zero than the total effect, we can conclude with 95% confidence that basic need satisfaction and basic need frustration at least partially mediate the relationship between perceived negative coach reactions and distress in this model (Hayes et al., 2011).

Discussion

Theoretical Implications of SDT

By examining the perception of certain coaching behaviors from the perspective of elite youth football players, we see that players' experience of distress symptoms could be related to the interpretation of these coaching behaviors (Moreno-Murcia et al., 2019; Sather, 2018). That

is why this study sought to test the research models portrayed in Figures 3, 4, 5, and 6. By testing these models, the goal was to understand the association of perceived coaching behaviors with the distress of young elite football players through the satisfaction or frustration of their basic psychological needs. Results support every predicted model and indicate that the relationships between perceived coaching behaviors and distress of young elite football players are at least partially mediated, if not completely mediated, by the satisfaction or frustration of basic psychological needs. The results of this study support existing research that suggests perceived coaching behaviors are linked to distress through the satisfaction or frustration of basic psychological needs (Carroll & Allen, 2021; Mageau and Vallerand, 2003; Pulido et al., 2020). As expected, the players reported they perceived coaching behaviors as supportive more than controlling on average.¹

As predicted, the perceived developmental support elite young football players receive from their coaches is significantly negatively related to distress. The results of this model hold up with previous research findings suggesting that football players that perceive their talent development environment, not just the coaching behavior, as supportive are presumably less stressed by having their basic needs satisfied (Ivarsson et al., 2015). Therefore, high-quality talent development environments with developmental supportive behaviors are essential to potentially reduce the distress of young elite football players and support their development toward a professional career.

Furthermore, the model testing the relationship between perceived autonomy supportive behaviors and distress also predicted correctly the significant negative association between the two variables. This can be explained through self-determination theory by suggesting that if the

¹ See Results section: Negative coach reactions has a significantly lower mean than all the other perceived coaching behaviors.

basic psychological needs are supported, specifically autonomy in this case, then players can have a better experience playing football and potentially experience less distress in their football life (Adie et al., 2012). Previous research suggests that players' self-determined motivational styles are linked with diminished distress (Vella et al., 2021). Thus, perceiving autonomy supportive behaviors from the coach may contribute to diminishing distress in elite young football players by supporting their own motivation and determination to become professional football players.

From a different perspective, the perception of coach performance expectations in relation to distress was also predicted successfully by demonstrating a significant negative relationship. Previous research on this relationship may point out that the perception of coach performance expectations may be detrimental to the performance by causing distress in athletes. This is because some players may perceive certain expectations from the coach to be unattainable (Smith et al., 2010). However, Forlenza et al., 2018 suggest that the perception of coaches setting realistic performance expectations may not only reduce the distress of their athletes but also build up confidence and motivation to reach given standards.

On another note, the relationship measuring the perception of negative coach reaction in relation to distress was also predicted successfully by a significant positive relationship. This is also in line with previous research on the topic as Frey (2007) proposed that controlling coaching behaviors can be associated with an athlete's distress through basic need frustration. Other studies suggest that controlling coaching behaviors are linked with increased distress, but also decreased self-determined motivation (Jowett, 2009; Martin et al., 2009). In order to not compromise their ability to instruct performance, coaches should possess good communication skills to successfully support athletes (Cherubini, 2019). Hence, coaches have tried to adopt more

contemporary learning approaches with more individualized and diverse adaptive environments (Stone et al., 2021).

Therefore, according to self-determination theory, the negative effects on the distress of players may be due to the frustration of their basic psychological needs (Bartholomew et al., 2011; Curran et al., 2016; Lataster et al., 2022; Reinboth et al., 2004; Ryan & Deci, 2017; Skinner et al., 2009; Stebbings et al., 2011). However, we can observe that players in this study do not report high levels of distress symptoms using Amirkhani's (2018) event load scale, in comparison to Gouttebarga et al., 2015 study which used Braam et al., (2009) validation distress screener.² Therefore, there is a potential existing difference in the number of players reporting distress symptoms between professional football players measured previously, and the elite young football players measured in this study. Nonetheless, the satisfaction or frustration of basic psychological needs proved to be significant mediator variables in this study and SDT can be considered an influential framework to evaluate perceived coaching behaviors and the distress of elite young football players.

Strengths & Limitations

Before discussing the specific strengths and limitations of this study, it is important to emphasize that all measures used in this analysis are self-report data from young elite football players. This is a common way to collect data in the scientific realm of sports, and there are some concerns and limitations regarding this approach and the causal interpretation of results. The reasons include systematic response distortions and biases, method variances, and the adjustment of psychometric properties to fit the original scales with the adopted ones (Razavi, 2001).

Regardless of these reasons, to avoid causal interpretation, this master thesis has been executed

² The percentage of players reporting distress in our scale is much lower than the percentage of players reporting distress symptoms in previous research.

with the effort to interpret the results appropriately and only for this research. To generalize the findings of this sample, a further review of each model should be considered.

Research in the sport and physical exercise community has mainly revolved around coaches' supportive behaviors (Mageau & Vallerand, 2003). Nevertheless, the investigation of controlling coaching behaviors has gained interest as behaving in authoritarian ways can create distress in athletes (Bartholomew et al., 2010; Carroll and Allen, 2021). Therefore, a limitation of this study was measuring perceived controlling coaching behaviors with a single variable, compared to the three variables measuring perceived support coaching behaviors. An examination of more perceived controlling coaching behaviors may give way to a better understanding of which behaviors are related to distress in athletes. Thus, the behaviors that are controlling the basic psychological needs of athletes can be identified and removed from the coaching practices.

Additionally, there is a lack of research studies and inadequate documentation of specific interpersonal situations in coach-athlete relationships (Sagar & Jowell, 2012). This research project examines perceived coaching behaviors within the coach-athlete relationship from the perspective of the players but does not evaluate the coach's perception of their own behavior. Research has demonstrated that when coaches and players agreed upon the coaching behaviors, supportive coaching behaviors encouraged basic need satisfaction, and controlling behaviors predicted basic need frustration. In case of disagreement on the coaching behavior, players with coaches who describe their behavior as more supportive report more need satisfaction and less need frustration than players with coaches who view their behavior as more controlling (Rocchi & Pelletier, 2018).

Regardless of these limitations, the study proves to be strong and valuable since the obtained results provide an explanation for how perceived coaching behaviors can relate to distress through basic psychological needs. Relatedly, previous research has mainly focused on the effects of coaching behavior on basic need satisfaction (Pulido et al., 2020). In contrast, in the present research emphasis was made on the association between perceived coaching behaviors and basic need satisfaction alongside basic need frustration. Another strength of this study is the number of participants. By being part of a nationwide data collection project, the available participants differ from most previous studies examining the same constructs. Research studies investigating perceived developmental support coaching (Erikstad et al., 2018), perceived coach autonomy support (Hollembeak & Amorose, 2005; Adie et al., 2012; Balaguer et al., 2018), the perception of coach performance expectations (Frey, 2007), the perception of negative coach reactions (Desai & Patil, 2022), basic psychological needs (Ryan & Deci, 2017), and distress in athletes (Sæther, 2018) all had significantly fewer participants.

Future Research

There are various theoretical and practical recommendations portrayed by this research study. Firstly, analyzing certain perceived coaching behaviors from the perception of the coaches could provide insightful information regarding the coach-athlete relationship and its effects on the distress of young athletes. Research on coach-athlete relationship dynamics has revolved around models that provide effective coaching guidelines to follow. One view that has arisen in contrast to previous beliefs about coaching is that the coach-athlete relationship functions in a bidirectional manner (Jowett, 2017). Meaning that the coach and athlete depend on each other, not only for the team's success but also for their individual success. Conducting dyadic research could provide valuable results by encompassing the co-orientation dynamic of the coach-athlete

relationship. Further research assessing the coach's perspective of their own behavior could help assess the distress of the players (Jowett, 2007). On a practical note, to improve coaching practices, coaches and players should focus on maintaining and improving their relationships by supporting each other (Jowett, 2017).

Furthermore, additional coaching behaviors, especially perceived controlling coaching behaviors, can be considered to expand further the analysis of the model. An example of a controlling coaching behavior to be examined could be perceived negative conditional regard, which is the players feeling less care and attention from the coach when certain desired behaviors are not displayed (Carroll & Allen, 2021). This could be an interesting variable to examine as it captures the desired behaviors wanted by the players, and it could also include the self-assessment of the behaviors by the coach. Other perceived coaching behaviors to consider could be related to performance under pressure, as coaches can be found to lack self-awareness and exhibit controlling behaviors when engaging in high-pressure situations (Cormack & Gillman, 2021).

Conclusion

Distress is one of the mental health problems that could arise for young elite football players in competitive sports environments. In line with self-determination theory and previous findings (SDT; Deci & Ryan, 2000, 2012, 2017, 2020), the satisfaction and frustration of basic psychological needs can impact the amount of distress experienced by young elite football players. Thus, perceived supportive coaching behaviors showed evidence in this study for promoting the satisfaction of basic psychological needs and diminishing distress. On the other hand, perceived controlling coaching behavior showed evidence in favor of the frustration of basic psychological needs and increasing distress. Future research should focus on the coaches'

perspective of their behavior in addition to the perception of the behaviors from the players to better understand players' level of distress and the coach-athlete relationship. For practical purposes, to enhance a need-supporting environment, it is recommended that coaches assess their relationship with elite young football players and particularly focus on the perception players have of their behavior.

References

- Adie, J. W., Duda, J. L., & Ntoumanis, N. (2012). Perceived coach-autonomy support, basic need satisfaction, and the well- and ill-being of elite youth soccer players: a longitudinal investigation.
- Adie, J., & Jowett, S. (2010). Athletes' meta-perceptions of the coach-athlete relationship, multiple achievement goals, and intrinsic motivation among track and field athletes. *Journal of Applied Social Psychology, 40*, 2750-2773.
- Amirkhan J. H. (2012). Stress overload: A new approach to the assessment of stress. *American Journal of Community Psychology, 49*, 55–71. Crossref PubMed.
- Amirkhan, J. H. (2018). A brief stress diagnostic tool: The short stress overload scale. *Assessment, 25*(8), 1001-1013.
- Amorose, A. J. (2007). Coaching effectiveness: exploring the relationship between coaching behavior and self-determined motivation. In M. S. Hagger & N. L. D. Chatzisarantis (Eds.), *Self-determination theory in exercise and sport* (pp.209–227). Champaign: Human Kinetics.
- Amorose, A. J., & Anderson-Butcher, D. (2015). Exploring the independent and interactive effects of autonomy-supportive and controlling coaching behaviors on adolescent athletes' motivation for sport. *Sport, Exercise, and Performance Psychology, 4*(3), 206.

APA Dictionary of Psychology. Dictionary.apa.org. (2022). Retrieved 31 July 2022, from <https://dictionary.apa.org/well-being>.

Balaguer, I., Castillo, I., Cuevas, R., & Atienza, F. (2018). The Importance of Coaches' Autonomy Support in the Leisure Experience and Well-Being of Young Footballers. *Frontiers in Psychology, 9*. doi:10.3389/fpsyg.2018.00840

Barlow, R. (2022). *Antonio Rudiger's anecdote proves the unique management skills of Carlo Ancelotti - Football España*. Football España. Retrieved 4 October 2022, from <https://www.football-espana.net/2022/09/20/antonio-rudiger-anecdote-proves-unique-management-skills-of-Carlo-Ancelotti>.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.

Bartholomew, K. J., Ntoumanis, N., & Thøgersen-Ntoumani, C. (2010). The controlling interpersonal style in a coaching context: Development and initial validation of a psychometric scale. *Journal of sport and exercise psychology, 32*(2), 193-216.

Bartholomew, K. J., Ntoumanis, N., Ryan, R. M., Bosch, J. A., & Thøgersen-Ntoumani, C. (2011). Self-determination theory and diminished functioning: The role of interpersonal control and psychological need thwarting. *Personality and Social Psychology Bulletin, 37*(11), 1459-1473.

Benson, P. L., & Saito, R. N. (2001). The scientific foundations of youth development. In P. L. Benson & K. J. Pittman (Eds.), *Trends in youth development: Visions, realities and*

- challenges (pp. 135–154). London, UK: Kluwer Academic Publishers. doi:10.1007/978-1-4615-1459-6_5
- Berntsen, H., & Kristiansen, E. (2019). Guidelines for Need-Supportive Coach Development: The Motivation Activation Program in Sports (MAPS). *International Sport Coaching Journal*, 6(1), 88-97. doi:10.1123/iscj.2018-0066
- Bissett, J. E., & Tamminen, K. A. (2022). Student-athlete disclosures of psychological distress: Exploring the experiences of university coaches and athletes. *Journal of Applied Sport Psychology*, 34(2), 363-383.
- Braam C, van Oostrom S.H., Terluin B., Vasse R., de Vet H.C.W., Anema J.R. (2009) Validation of a distress screener. *Journal of Occupational Rehabilitation* 19, 231-237.
- Brandão, M. R. F., Polito, L. F., Hernandes, V., Correa, M., Mastrocola, A. P., Oliveira, D., ... & Angelo, D. (2021). Stressors in indoor and field Brazilian soccer: are they perceived as distress or eustress? *Frontiers in Psychology*, 1305.
- Branson, V., Dry, M. J., Palmer, E., & Turnbull, D. (2019). The adolescent distress-eustress scale: Development and validation. *SAGE Open*, 9(3), 1-14.
<https://doi.org/10.1177/2158244019865802>
- Buning, M. (2019). Examining differential coaching behaviors in positive coaches: a mixed-methods perspective guided by the expectation performance process. *Journal of Amateur Sport*, 4(2), 29–60. <https://doi.org/10.17161/jas.v4i2.6731>
- Carroll, M., & Allen, J. (2021). ‘Zooming in on the antecedents of youth sport coaches’ autonomy-supportive and controlling interpersonal behaviors: a multimethod study. *International Journal of Sports Science & Coaching*, 16(2), 236-248.
- Cherubini, J. (2019). Strategies and communication skills in sports coaching.

- Cormack, E. E., & Gillman, J. (2021). Curling coaches' understanding of their role in developing performance under pressure through skill acquisition. *International Sport Coaching Journal*, 9(1), 10-19.
- Cronin, L. D., & Allen, J. B. (2015). Developmental experiences and well-being in sport: The importance of the coaching climate. *The Sport Psychologist*, 29(1), 62-71.
- Curran, T., Hill, A. P., Ntoumanis, N., Hall, H. K., & Jowett, G. E. (2016). A Three-Wave Longitudinal Test of Self-Determination Theory's Mediation Model of Engagement and Disaffection in Youth Sport. *J Sport Exerc Psychol*, 38(1), 15-29.
- Deci, E. L., La Guardia, J. G., Moller, A. C., Scheiner, M. J., & Ryan, R. M. (2006). On the benefits of giving as well as receiving autonomy support: Mutuality in close friendships. *Personality and Social Psychology Bulletin*, 32, 313–327. <http://dx.doi.org/10.1177/0146167205282148>
- Deci, E. L., & Ryan, R. M. (1987). The support of autonomy and the control of behavior. *Journal of personality and social psychology*, 53(6), 1024.
- Deci, E. L., & Ryan, R. M. (2001). The sport climate questionnaire.
- Desai, S., & Patil, S. S. (2022). Strategies for the sports coach in the management of stress situations in the sports competition. In the National *Conference, February*.
- Duffy, P. J., Lyons, D. C., Moran, A. P., Warrington, G. D., & MacManus, C. P. (2006). How we got here: Perceived influences on the development and success of international athletes. *The Irish Journal of Psychology*, 27(3-4), 150-167.
- Erikstad, M. K., Haugen, T., & Høigaard, R. (2018). Positive environments in youth football: perceived justice and coach feedback as predictors of athletes' needs satisfaction.

German Journal of Exercise and Sport Research: Sportwissenschaft, 48(2), 263–270.

<https://doi.org/10.1007/s12662-018-0516-1>

- Forlenza, S. T., Pierce, S., Vealey, R. S., & Mackersie, J. (2018). Coaching behaviors that enhance confidence in athletes and teams. *International Sport Coaching Journal*, 5(3), 205-212.
- Frey, M. (2007). College coaches' experiences with stress – “problem solvers” have problems, too. *The Sport Psychologist*, 21, 38–59.
- Gouttebauge, V., Backx, F. J., Aoki, H., & Kerkhoffs, G. M. (2015). Symptoms of Common Mental Disorders in Professional Football (Soccer) Across Five European Countries. *Journal of sports science & medicine*, 14(4), 811–818.
- Gustafsson, H., Skoog, T., Podlog, L., Lundqvist, C., & Wagnsson, S. (2013). Hope and athlete burnout: Stress and affect as mediators. *Psychology of Sport and Exercise*, 14, 640–649. doi:10.1016/j.psychsport.2013.03.008
- Ivarsson, A., Stenling, A., Fallby, J., Johnson, U., Borg, E., & Johansson, G. (2015). The predictive ability of the talent development environment on youth elite football players' well-being: A person-centered approach. *Psychology of Sport and Exercise*, 16, 15-23.
- Jowett, S., Adie, J. W., Bartholomew, K. J., Yang, S. X., Gustafsson, H., & Lopez-Jiménez, A. (2017). Motivational processes in the coach-athlete relationship: A multi-cultural self-determination approach. *Psychology of Sport and Exercise*, 32, 143-152.
- Jowett, S., & Poczwardowski, A. (2007). Understanding the coach-athlete relationship. *Social psychology in sport*, 6, 3-14.

- Kane, L., & Ashbaugh, A. (2017). Simple and parallel mediation: {A} tutorial exploring anxiety sensitivity, sensation seeking, and gender. *The Quantitative Methods For Psychology*, 13(3), 148-165. doi: 10.20982/tqmp.13.3.p148
- Kline, R.B. (1994). *An easy guide to factor analysis*. London: Routledge.
- Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs*, 76(4), 408–420. doi: 10.1080/03637750903310360
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis. A regression-based approach*. New York, NY: The Guilford Press.
- Hayes, A. F., Preacher, K. J., & Myers, T. A. (2011). Mediation and the estimation of indirect effects in political communication research. *Sourcebook for political communication research: Methods, measures, and analytical techniques*, 23(1), 434-65.
- Hollebeak, J., & Amorose, A. J. (2005). Perceived Coaching Behaviors and College Athletes Intrinsic Motivation: A Test of Self-Determination Theory. *Journal of Applied Sport Psychology*, 17(1), 20-36. doi:10.1080/10413200590907540
- Lataster, J., Reijnders, J., Janssens, M., Simons, M., Peeters, S., & Jacobs, N. (2022). Basic psychological need satisfaction and well-being across age: A cross-sectional general population study among 1709 Dutch speaking adults. *Journal of Happiness Studies*. <https://doi.org/10.1007/s10902-021-00482-2>
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York, NY: Springer.
- Lindgren, E. C., & Barker-Ruchti, N. (2017). Balancing performance-based expectations with a holistic perspective on coaching: A qualitative study of Swedish women's national

- football team coaches' practice experiences. *International Journal of Qualitative Studies on Health and Well-Being*, 12(sup2), 1358580.
- Mageau, G. A., & Vallerand, R. J. (2003). The coach–athlete relationship: A motivational model. *Journal of Sports Science*, 21, 883-904.
- Martin, M. M., Rocca, K. A., Cayanus, J. L., & Weber, K. (2009). Relationship between Coaches' use of Behavior Alteration Techniques and Verbal Aggression on Athletes' Motivation and Affect. *Journal of Sport Behavior*, 32(2).
- Mediation (David A. Kenny)*. Davidakenny.net. (2022). Retrieved 13 July 2022, from <http://davidakenny.net/cm/mediate.htm#CI>.
- Moreno-Murcia, J. A., Huéscar Hernández, E., Conte Marín, L., & Nuñez, J. L. (2019). Coaches' motivational style and athletes' fear of failure. *International journal of environmental research and public health*, 16(9), 1563.
- Mouratidis, A., Vansteenkiste, M., Lens, W., & Sideridis, G. (2008). The motivating role of positive feedback in sport and physical education: evidence for a motivational model. *Journal of Sport and Exercise Psychology*, 30(2),240–258.
- Ntoumanis, N. (2012). A self-determination theory perspective on motivation in sport and physical education: Current trends and possible future research directions. *Motivation in sport and exercise*, 3, 91–128.
- Ommundsen, Y., Roberts, G. C., Lemyre, P., & Miller, B. W. (2006). Parental and Coach Support or Pressure on Psychosocial Outcomes of Pediatric Athletes in Soccer. *Clinical Journal of Sports Medicine*, 16(6), 522-526. doi:10.1097/01.jsm.0000248845.39498.56

- Pensgaard, A. M., & Roberts, G. C. (2002). Elite athletes' experiences of the motivational climate: the coach matters. *Scandinavian Journal of Medicine & Science in Sports*, 12(1), 54–59.
- Pulido, J. J., García-Calvo, T., Leo, F. M., Figueiredo, A. J., Sarmento, H., & Sánchez-Oliva, D. (2020). Perceived coach interpersonal style and basic psychological needs as antecedents of athlete-perceived coaching competency and satisfaction with the coach: A multi-level analysis. *Sport, Exercise, and Performance Psychology*, 9(1), 16.
- Razavi, T. (2001). Self-report measures: An overview of concerns and limitations of questionnaire use in occupational stress research.
- Reinboth, M., Duda, J. L., & Ntoumanis, N. (2004). Dimensions of coaching behavior, need satisfaction, and the psychological and physical welfare of young athletes. *Motivation and Emotion*, 28(3), 297-313.
- Rice, K. G., Richardson, C. M., & Tueller, S. (2014). The Short Form of the Revised Almost Perfect Scale. *Journal of Personality Assessment*, 96, 368-379. doi: 10.1080/00223891.2013.838172
- Rocchi, M., & Pelletier, L. (2018). How does coaches' reported interpersonal behavior align with athletes' perceptions? Consequences for female athletes' psychological needs in sport. *Sport, Exercise, and Performance Psychology*, 7(2), 141.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68–78.
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. New York: Guilford Publishing.

- Ryan, R. M., Huta, V., & Deci, E. L. (2008). Living well: A self-determination theory perspective on eudaimonia. *Journal of happiness studies*, 9(1), 139-170.
- Ryan, R. M., & Frederick, C. (1997). On energy, personality, and health: Subjective vitality as a dynamic reflection of well-being. *Journal of Personality*, 65(3), 529-565.
- Sæther, S. (2018). Stress among Talents in a Football Academy. *Sport Mont*, 16(2), 3-8.
<https://doi.org/10.26773/smj.180601>
- Sagar, S. S., & Jowett, S. (2012). Communicative acts in coach–athlete interactions: When losing competitions and when making mistakes in training. *Western Journal of Communication*, 76(2), 148-174.
- Schlesinger, T., Löbig, A., Ehnold, P., & Nagel, S. (2018). What is influencing the dropout behavior of youth players from organized football?. *German journal of exercise and sports research*, 48(2), 176-191.
- Silva, A. S., Barreiros, A., & Fonseca, A. M. (2019). Exploring the importance of coaches in the development of the sports career in Handball. The perception of athletes from higher and lower levels of success. *Cuadernos de Psicología del Deporte*, 19(1), 106-120.
- Skinner, E. A., Kindermann, T. A., & Furrer, C. J. (2009). A motivational perspective on engagement and disaffection: Conceptualization and assessment of children's behavioral and emotional participation in academic activities in the classroom. *Educational and Psychological Measurement*, 69, 493–525.
- Smith, A., Ntoumanis, N., & Duda, J. (2010). An investigation of coach behaviors, goal motives, and implementation intentions as predictors of well-being in sport. *Journal of Applied Sport Psychology*, 22, 17-33. doi: 10.1080/10413200903403190

- Smith, R. E., Smoll, F. L., & Barnett, N. P. (1995). Reduction of children's sports performance anxiety through social support and stress-reduction training for coaches. *Journal of applied developmental psychology, 16*(1), 125-142.
- Smith, N., Tessier, D., Tzioumakis, Y., Fabra, P., Quested, E., Appleton, P.,... Duda, J. (2016). The relationship between observed and perceived assessments of the coach-created motivational environment and links to athlete motivation. *Psychology of Sport and Exercise, 23*, 51–63. <http://dx.doi.org/10.1016/j.psychsport.2015.11.001>
- Smith, R. E., Zane, N. W., & Smoll, F. L. (1983). Behavioral assessment in youth sports: coaching. *Medicine and Science in Sports and Exercise, 15*(3), 208-214.
- Solomon, G. B. (2008). Expectations and perceptions as predictors of coaches' feedback in three competitive contexts. *Journal for the Study of Sports and Athletes in Education, 2*(2), 161-179. doi: 10.1179/ssa.2008.2.2.161
- Soul2Goal. (2022). *Soul2Goal – Mentale metingen voor de sport*. Soul2goal.nl. Retrieved 13 May 2022, from <https://www.soul2goal.nl/>.
- Stebbing, J., Taylor, I. M., & Spray, C. M. (2011). Antecedents of perceived coach autonomy-supportive and controlling behaviors: coach psychological need satisfaction and well-being. *Journal of Sport & Exercise Psychology, 33*(2), 255–72.
- Stone, J. A., Rothwell, M., Shuttleworth, R., & Davids, K. (2021). Exploring sports coaches' experiences of using a contemporary pedagogical approach to coaching: An international perspective. *Qualitative Research in Sport, Exercise, and Health, 13*(4), 639-657.
- Van der Kaap-Deeder, J., Soenens, B., Ryan, R. M., & Vansteenkiste, M. (2020). Manual of the Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS). Ghent University, Belgium.

van Kleef, G. A., Cheshin, A., Koning, L. F., & Wolf, S. A. (2019). Emotional games: How coaches' emotional expressions shape players' emotions, inferences, and team performance. *Psychology of Sport and Exercise, 41*, 1-11.

Vella, S. A., Benson, A., Sutcliffe, J., McLaren, C., Swann, C., Schweickle, M. J., ... & Bruner, M. (2021). Self-determined motivation, social identification and the mental health of adolescent male team sport participants. *Journal of Applied Sport Psychology, 33*(4), 452-466.

Table 1*Means, Standard Deviations, and Correlations*

	M	SD	2	3	4	5	6	7
1. Perceived Developmental Support	5.01	1.15	.78**	.40**	-.33**	.42**	-.34**	-.33**
2. Perceived Autonomy Support	4.95	1.01		.51**	-.43**	.47**	-.37**	-.33**
3. Perception of Coach Performance Expectations	4.78	1.13			-.48**	.43**	-.40**	-.43**
4. Perception of Negative Coach Reactions	3.00	1.24				-.28**	.25**	.24**
5. Basic Need Satisfaction	5.25	.91					-.44**	-.48**
6. Basic Need Frustration	2.43	.94						.56**
7. Distress	1.85	.80						

Note. $n = 1897$. ** $p < .001$ (2-tailed)

Table 2*Indirect Effects of the Four Single-Step Multiple Mediator Models*

	<i>Indirect Effects</i>		
	<i>Effect</i>	<i>Standard Error</i>	<i>Bootstrap 95% CI</i>
Total	-0.24	.02	-.28, -.21
Perceived Developmental Support → Basic Need Satisfaction → Distress	-0.10	.01	-.12, -.08
Perceived Developmental Support → Basic Need Frustration → Distress	-0.13	.01	-.16, -.11
Total	-0.32	.02	-.36, -.28
Perceived Autonomy Support → Basic Need Satisfaction → Distress	-0.14	.01	-.17, -.11
Perceived Autonomy Support → Basic Need Frustration → Distress	-0.18	.01	-.21, -.15
Total	-0.26	.02	-.29, -.23
Perception of Coach Performance Expectations → Basic Need Satisfaction → Distress	-0.10	.01	-.12, -.08
Perception of Coach Performance Expectations → Basic Need Frustration → Distress	-0.16	.01	-.18, -.13
Total	.17	.02	.14, .20
Perception of Negative Coach Reactions → Basic Need Satisfaction → Distress	.07	.01	.05, .09
Perception of Negative Coach Reactions → Basic Need Frustration → Distress	.10	.01	.08, .12

Note. $n = 1897$

Figure 1

Proposed Meditation Model of Perceived Supportive Coaching Behaviors in Relation to Distress of Young Elite Football Players through Satisfaction or Frustration of Players' Basic Psychological Needs

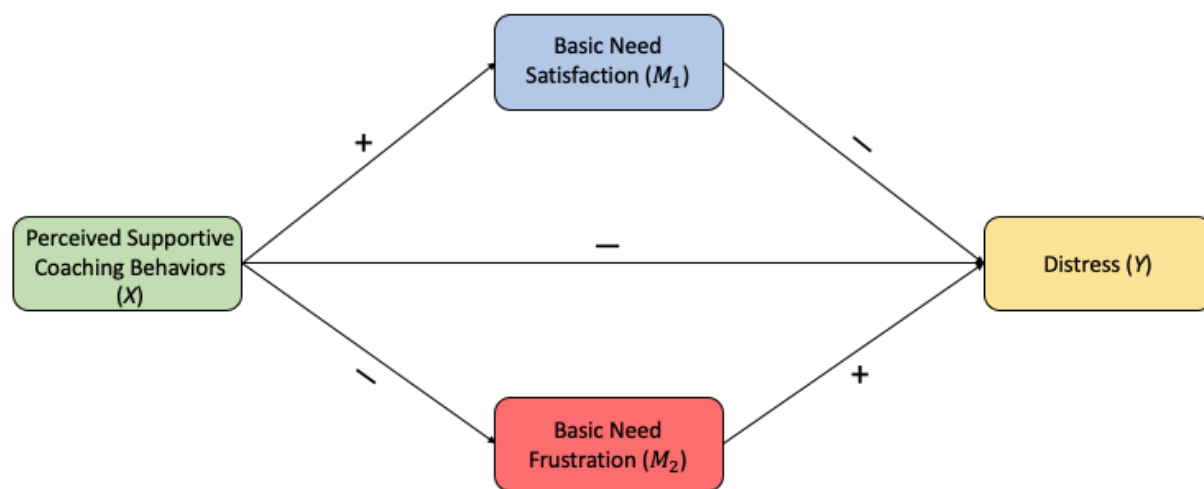


Figure 2

Proposed Meditation Model of Perceived Controlling Coaching Behaviors in Relation to Distress of Young Elite Football Players through Satisfaction or Frustration of Players' Basic Psychological Needs

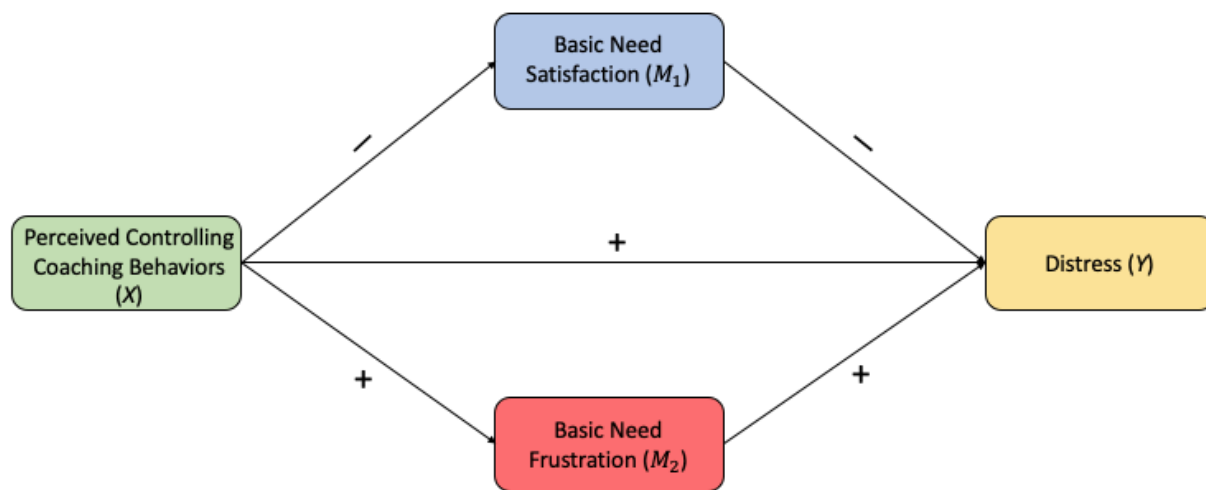
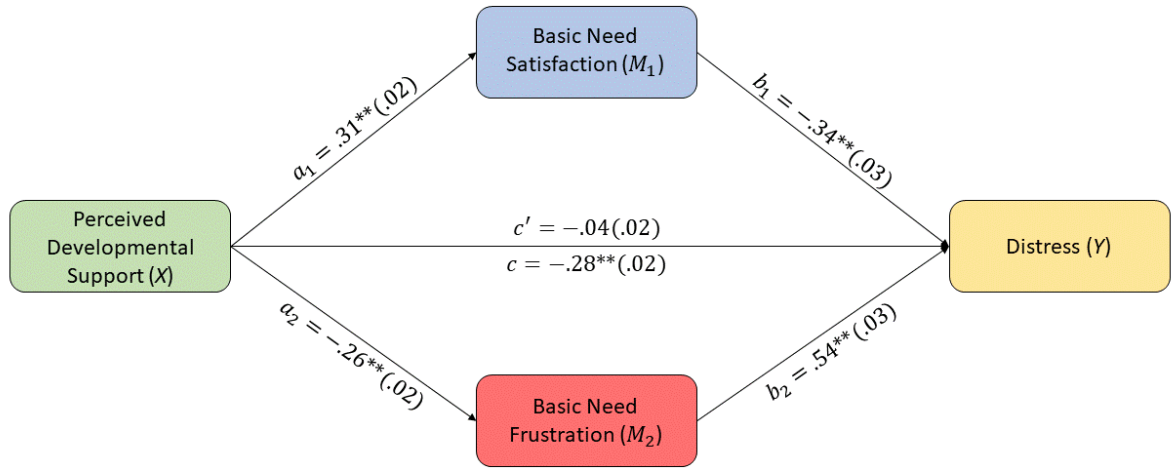


Figure 3

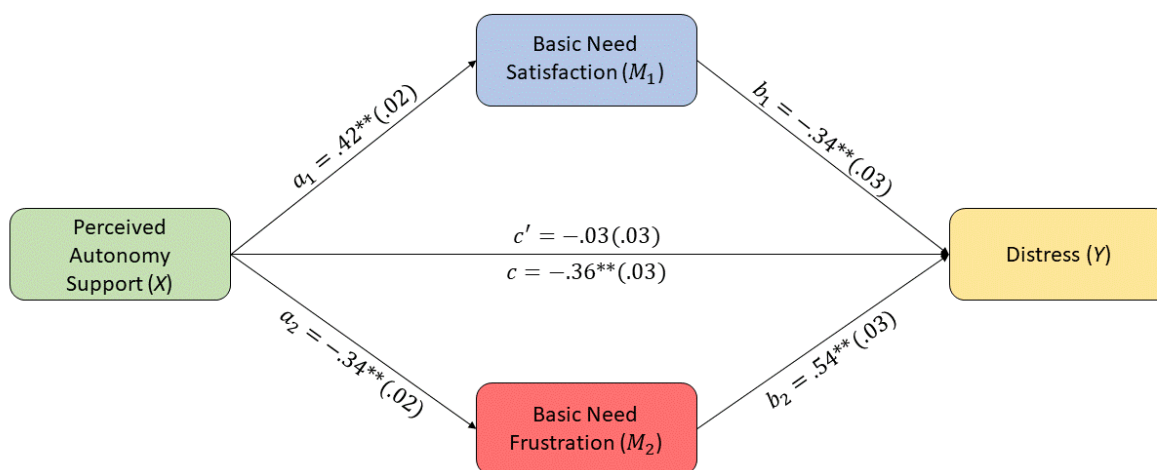
The Mediating Effect of Basic Need Satisfaction and Basic Need Frustration in the Relationship between Perceived Developmental Support and Distress in Elite Young Football Players



Notes. $n = 1897$. $**p < .001$; All presented values are unstandardized regression coefficients; a paths are effects of perceived developmental support on both dimensions of basic psychological needs; b paths are effects of basic psychological needs on distress; c' path is the direct effect of perceived developmental support on distress; c path is the total effect of perceived developmental support on distress. Standard error values are presented in parentheses.

Figure 4

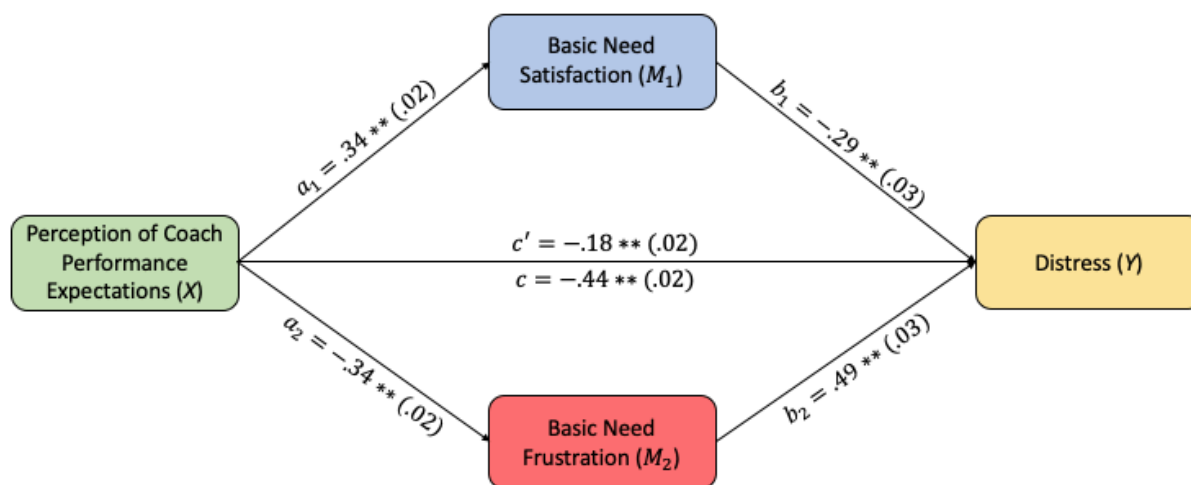
The Mediating Effect of Basic Need Satisfaction and Basic Need Frustration in the Relationship between Perceived Autonomy Support and Distress in Elite Young Football Players



Notes. $n = 1897$. $**p < .001$; All presented values are unstandardized regression coefficients; a paths are effects of perceived autonomy support on both dimensions of basic psychological needs; b paths are effects of basic psychological needs on distress; c' path is the direct effects of perceived autonomy support on distress; c path is the total effect of perceived autonomy support on distress. Standard error values are presented in parentheses.

Figure 5

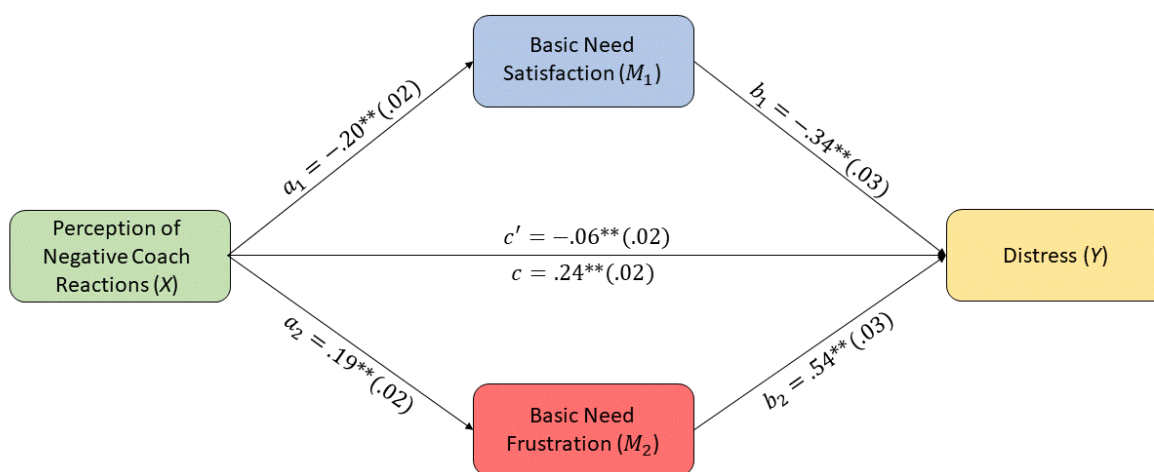
The Mediating Effect of Basic Need Satisfaction and Basic Need Frustration in the Relationship between the Perception of Coach Performance Expectations and Distress in Elite Young Football Players



Notes. $n = 1897$. $**p < .001$; All presented values are unstandardized regression coefficients; a paths are effects of the perception of coach performance expectations on both dimensions of basic psychological needs; b paths are effects of basic psychological needs on distress; c' path is the direct effects of the perception of coach performance expectations on distress; c path is the total effect of the perception of coach performance expectations on distress. Standard error values are presented in parentheses.

Figure 6

The Mediating Effect of Basic Need Satisfaction and Basic Need Frustration in the Relationship between the Perception of Negative Coach Reactions and Distress in Elite Young Football Players



Notes. $n = 1897$. $**p < .001$; All presented values are unstandardized regression coefficients; a paths are effects of the perception of negative coach reactions on both dimensions of basic psychological needs; b paths are effects of basic psychological needs on distress; c' path is the direct effects of the perception of negative coach reactions on distress; c path is the total effect of the perception of negative coach reactions on distress. Standard error values are presented in parentheses.

Appendix

<i>Scale</i>	<i>Item</i>	<i>Original</i>	<i>Current (translated from Dutch) Inverted item: *</i>
Perceived Developmental Support	1	N/A	The coach clearly explains to me how I should develop.
	2	N/A	The coach clearly tells me what I need to do to improve.
	3	N/A	The coach indicates exactly how I can become even better.
Perceived Autonomy Support	1	I feel that my coach provides me with choices and options.	The coach gives me choices and options on how I can develop myself as a footballer.
	2	I feel understood by my coach.	The coach makes me feel like he understands me.
	3	My coach conveyed confidence in my ability to do well in athletics.	The coach radiates that he has confidence in me as a footballer.
	4	My coach encouraged me to ask questions.	The coach encourages me to ask questions.
	5	My coach listens to how I would like to do things.	The coach listens to me about how I would like to do things.
	6	My coach tries to understand how I see things before suggesting a new way to do things.	The coach first tries to understand what I want before he indicates what he wants.
Perception of Coach Performance Expectations	1	Doing my best never seems to be enough.	No matter how hard I try, the coach is never completely satisfied.
	2	My performance rarely measures up to my standards.	My football performance often does not match the expectations of the coach.

	3	I often feel disappointed after completing a task because I know I could have done better.	The coach is often disappointed in me because he thinks I could have played better.
	4	I am hardly ever satisfied with my performance.	The coach is almost never satisfied with my football performance.
Perception of Negative Coach Reactions	1	My coach shouts at me in front of others to make me do certain things.	The coach grumbles or curses when I don't do something right.
	2	My coach intimidates me into doing the things that he/she wants me to do.	The coach doesn't get angry when I make mistakes*
	3	My coach embarrasses me in front of others if I do not do the things he/she wants me to do	The coach gets annoyed when I make a mistake
Basic Need Satisfaction	1	During training and/or competitions I had a sense of choice and freedom in the things I did - Autonomy	During training and/or competitions I had a sense of choice and freedom in the things I did - Autonomy
	2	During training and/or competitions I had the feeling that the way I was coached by my coach and/or teammates, was the way I want it to be - Autonomy	During training and/or competitions I had the feeling that the way I was coached by my coach and/or teammates, was the way I want it to be - Autonomy
	3	During training and/or competitions I was confident that I could bring the exercise/competition to a successful conclusion - Competency	During training and/or competitions I was confident that I could bring the exercise/competition to a successful conclusion - Competency
	4	During training and/or competitions I felt skilled or good at what I was doing - Competency	During training and/or competitions I felt skilled or good at what I was doing - Competency
	5	During training sessions and/or matches I felt connected to my teammates and/or the coach - Relatedness	During training sessions and/or matches I felt connected to my teammates and/or the coach - Relatedness
	6	During training and/or games I had a warm feeling with my teammates and/or the coach - Relatedness	During training and/or games I had a warm feeling with my teammates and/or the coach - Relatedness

Basic Need Frustration	1	During training and/or competitions I felt compelled to perform a practice form/task assignment that I would not choose myself - Autonomy	During training and/or competitions I felt compelled to perform a practice form/task assignment that I would not choose myself - Autonomy
	2	During training sessions and/or competitions, the practice form/task assignment I carried out felt like 'I had to' - Autonomy	During training sessions and/or competitions, the practice form/task assignment I carried out felt like 'I had to' - Autonomy
	3	During training and/or competitions I felt insecure about my skills - Competency	During training and/or competitions I felt insecure about my skills - Competency
	4	During training and/or competitions I felt disappointed in my performance - Competency	During training and/or competitions I felt disappointed in my performance - Competency
	5	During training and/or competitions I felt excluded from my team/by my coach - Relatedness	During training and/or competitions I felt excluded from my team/by my coach - Relatedness
	6	During training and/or games I had the feeling that my teammates and/or coach were cold and distant towards me - Relatedness	During training and/or games I had the feeling that my teammates and/or coach were cold and distant towards me - Relatedness
Distress	1	It felt like nothing was going right	It felt like you couldn't live up to expectations
	2	It felt like there was no escape	It felt like you were being hunted
	3	It felt like things kept piling up	It felt like you had too much on your mind
	4	It felt like you were rushed	It felt like you were always under pressure
	5	It felt like you were carrying a heavy load	It felt like you were carrying a heavy load on your shoulders
